Eigenvalues and Eigenvectors – Section 6.1

Math 81
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Definition: Given a square matrix A, the number λ is an **eigenvalue** of A if

1 How to Determine the Eigenvalues and Eigenvectors of a Matrix

Procedure:

1.

2.

Example: Find the eigenvalues and corresponding eigenvectors of

$$A = \begin{pmatrix} 0 & -4 \\ 3 & 8 \end{pmatrix}.$$

2 Eigenspaces

Definition:

Example: Find a basis for each eigenspace of

$$A = \begin{pmatrix} 1 & 0 & 0 \\ -4 & 7 & 2 \\ 10 & -15 & -4 \end{pmatrix}$$